

REMARKS

Claims 1-3, 5, 6 and 9-14 are pending. Claim 1 has been amended. Applicants thank the Examiner for recognizing that claims 3, 5, 9 and 14 contain allowable subject matter.

Claims 1, 2 and 11-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,358,776 (Takehara et al.) in view of U.S. Patent No. 5,924,190 (Lee et al.).

Claim 1 has been amended to recite bringing a backface of the planar body into contact with a lower mold having air vents to define a resin injection cavity above the planar body and air release passages that extend beneath the planar body, wherein the air release passages are at least partially formed from the backface of the planar body and the air vents. An example of that is shown in FIGs. 5A and 5B, in which a backface of a planar body (*i.e.*, conductive foil 10) is in contact with a lower mold 28A that includes air vents 30. A resin injection cavity 29 is above the planar body 10 and air release passages extend beneath the planar body 10. The air release passages are at least partially formed from the backface of the planar body 10 and the air vents 30.

In certain implementations, the features recited in claim 1 allows air that might otherwise become trapped between a planar body 10 and a lower mold 28A and cause warping of the planar body 10 during resin injection to be released (via the air release passages). In such implementations, the possibility that warping of the planar body might occur is minimized. Neither the Takehara et al. patent, nor the Lee et al. patent, nor any combination thereof, discloses or suggests the features recited in claim 1.

The Takehara et al. patent discloses a method of fabricating an electronic component. The method (*see* FIGs. 3A-3C and 4A) includes providing a substrate 1 that has substrate electrodes 5 protruding from its upper surface and external electrodes 19 protruding from its lower surface. Chip 2 are positioned above the upper surface of substrate 1 so that the electrodes 18 on the chips 2 can be electrically coupled to corresponding substrate electrodes 5. Then, as shown in FIG. 3B, the substrate 1 is coupled to a lower die 21 so that the external electrodes 19 that protrude from the lower surface of the substrate 1 are in contact with the lower die 21. An

upper die 20 is aligned with the lower die 21 to define a cavity 24 therebetween. Melted resin is then injected into the cavity 24 to cover portions of the substrate's 1 upper surface and the chips 2. A blade 27 is then used to cut the substrate 1 and sealing resin along virtual line 9. *See* FIG. 4A.

The Office Action concedes that the Takehara et al. patent does not disclose an air vent in the lower die 21. However, the Office Action relies on U.S. Patent No. 5,924,190 (Lee et al.) as disclosing that feature. *See, e.g.*, FIG. 14. In FIG. 14 of the Lee et al. patent, the lower portion of the illustrated mold includes an air vent.

The air vent in the lower portion of Lee et al.'s mold does not extend beneath the planar body (*i.e.*, heat sink 502), upon which die 200 is mounted, as is recited in claim 1. The air vent is formed in a side wall of the lower portion of the mold. The heat sink 502 is quite a distance away from the air vent in the lower mold.

Nor is the air vent in the lower portion of Lee et al.'s mold at least partially formed from a backface of the planar body (*i.e.*, heat sink 502), upon which die 200 is mounted, and air vents in the lower portion of the mold, as is recited in claim 1. Instead, the air vent appears to be formed entirely by the mold body itself. The backface of the heat sink 502 (upon which die 200 is mounted) certainly does not form part of the air vent.

Claim 1 should be allowable for at least the foregoing reasons.

Claims 2 and 11-13 depend from claim 1 and, therefore, should be allowable for at least the same reasons as claim 1.

Claim 12 should be allowable for the following additional reasons.

Claim 12 recites bringing the backface of the planar body (upon which conductive patterns form mounting portions for circuit elements) into contact with at least one of the air vents. An example of that feature is shown in FIG. 6A where the backface of planar body 10 is in contact with air vent 30.

The Office Action relies on FIG. 1 of the Lee et al. patent as disclosing that feature. However, that is incorrect. FIG. 1 of the Lee et al. patent discloses a lead frame 16 that might be considered to be in contact with an end of the air vent 27. However, even if the lead frame were considered to partially form the air vent 27 (by being in contact with the air vent 27), the lead frame 16 does not correspond to the planar surface recited in claim 12. Referring to the implementation in FIGs. 5A and 5B in the present application, the planar surface 10 has conductive patterns 21 which form mounting portions 15 for circuit elements (*e.g.*, 22A, 22B). Additionally, circuit elements (*e.g.*, 22A, 22B) are disposed upon those mounting portions 15. In contrast, the lead frame 16 in the Lee et al. patent does not have conductive patterns that form mounting portions for circuit elements. Nor are there circuit elements disposed atop the lead frame 16.

Claim 12 should be allowable for the foregoing additional reasons as well.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.


No fee is believed to be due. However, please apply any charges or credits to deposit account 06-1050.

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